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REMARKS/ARGUMENTS

As examiner has doubtless noted, the redundant use of the word 'and' has been corrected in claims 2 and 10. Applicants have also amended claims 5 and 13 to clearly specify that the mixture of nitrogen and oxygen referred to is that in the step of annealing said nitrogen bearing layer.

Reconsideration is requested of all rejections based on 35 U.S.C. 103:

In the final rejection dated 08/12/2005, the examiner states:

"Kraft .. discloses ..annealing the nitrogen bearing layer in a mixture of nitrogen, oxygen ..."

We respectfully disagree. Kraft merely discloses that a post nitridation anneal may be implemented. There is no disclosure as to precisely how the anneal may be implemented, and in particular, that the anneal is carried out in a mixture of nitrogen and oxygen as required by independent claims 1 and 7 (see col. 5, lines 9-17, of Kraft).

In his advisory action, examiner then goes on to state "Examiner respectfully submits that Kraft, in column 5, lines 9 - 17, discloses that a post nitridation anneal takes place having the same plasma atmosphere as steps 504 and 503 to drive the nitrogen further or not as far, also the plasma power can be altered."

Again, we respectfully request that examiner tell us precisely where in Kraft column 5, lines 9 - 17 it states that the post nitridation anneal takes place in the same atmosphere as that used in steps 504 and 503. All that is ever said in column 5, lines 9 - 17 is that a post nitridation anneal may optionally be added to 503 and/or 504. Said steps are both stated in FIGs. 4a and 4b to be "PLASMA PROCESSING'.

In his final rejection, examiner also asserts that Kraft clearly states that there is "very little oxygen" and that the nitrogen amount "exceeds the amount of oxygen.", referring us to column 4, lines 15 - 20.

However, column 4, lines 15 - 20 says nothing about the composition of any gas in which one might perform a post nitridation anneal. Rather, it is making reference to the composition of several layers that comprise Kraft's structure.

Furthermore, it is submitted that, assuming *arguendo* that Kraft does teach that the same gases in the nitridation process are present in the annealing step as asserted by the examiner in the final rejection dated 08/12/2005, Kraft still does not disclose annealing said nitrogen bearing layer in a mixture of nitrogen and oxygen.

Referring to col. 3, lines 59-62, Kraft states that nitridation may be carried out using N_2, NH_3, NO, N_2O or a mixture thereof. However, the Examiner does not explain why N_2O and not N_2, NH_3 which are also mentioned as nitridation gases should be used in the anneal.

As mentioned in our response of 05/04/04, in a post nitridation anneal, there is no plasma present only unionized gas. Exposure to a plasma would likely increase the density of structural defects, not decrease it, as we claim. The examiner states in his office action of 03/07/2005 that

" in the plasma, the nitrogen-containing substances such as N_2O and N_2O_2 will dissociate and liberate oxygen into the chamber atmosphere.... after the plasma treatment, there will still be a presence of oxygen in the chamber during the anneal step."

Applicants respectfully disagree. As defined in independent claims 1 and 7, annealing of the nitrogen bearing layer takes place at a pressure of between about 5 and 15 torr. By contrast, nitridation takes places at a process pressure of between 1 to 50mTorr (see col. 4, lines 7-8). Therefore, if the annealing process takes place in the same chamber as the nitridation, the chamber pressure will have to be raised significantly by injecting some gases. As a result of this injection of gases to raise the pressure, the amount of oxygen becomes negligible.

Finally, independent claims 1 and 7 also include a limitation of annealing the nitrogen bearing layer at a temperature between about 1,000 and 1,100 °C. As is well-known to those skilled in the art, plasma chambers cannot reach a temperature of 1,000 and 1,100 °C required

by our invention. Therefore, Kraft neither teaches nor suggests the claimed temperature for annealing.

In summary, Kraft provides no information on how to perform a post nitridation anneal. In fact, Kraft's only mention of such an anneal occurs in line 11 of column 5 where he notes that it can be used. Chou also does not disclose the missing features not found in Kraft.

Since Kraft in view of Chou neither discloses the gas composition, temperature or pressure of our claimed annealing conditions, it can hardly be said that the general conditions of claims 1 and 7 are disclosed in the prior art. As indicated in MPEP 2143:

> "The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification..." In re Fritch, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992)"

In view of the above discussion, Applicants submit that independent claims 1 and 7 are patentable over Kraft and Chou, both alone and in combination.

Additionally, claims 5 and 13 include a limitation not disclosed in Kraft of:

"wherein said mixture of nitrogen and oxygen in the step of annealing said nitrogen bearing layer contains between about 10 and 30 volume percent oxygen"

The Examiner in his final rejection states that the ratio of oxygen is disclosed in col. 4, lines 12-29 of Kraft. However, Applicants submit that the cited portion says nothing about the composition of any gas in which one might perform a post nitridation anneal. Rather, what Kraft teaches there relates to the composition of his nitrided silicon oxide layer. Nothing is said in the cited portion about the composition of gases during anneal.

Respectfully submitted,

Stephen B. Ackerman
Reg. No. 37761